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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,363	05/08/2001	Hann-Hwan Ju	1014-012US01	2372
72689 7590 01/08/2008 SHUMAKER & SIEFFERT, P.A. 1625 RADIO DRIVE, SUITE 300 WOODBURY, MN 55125			EXAMINER TANG, KAREN C	
			ART UNIT 2151	PAPER NUMBER
			NOTIFICATION DATE 01/08/2008	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@ssiplaw.com

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/851,363	JU ET AL.	
	Examiner	Art Unit	
	Karen C. Tang	2151	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,6-8,10-17,19-21,23-33,39-44,46-48,52-58,60-71 and 77-86 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-8,10-17,19-21,23-33,39-44,46-48,52-58,60-71 and 77-86 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

- A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/30/07 has been entered.
- Claims 1, 2, 6-8, 10-17, 19-21, 23-33, 39-44, 46-48, 52-58, 60-71, 77-86 are presented for further examination.

### *Response to Arguments*

Applicant's arguments with respect to claims 1, 2, 6-8, 10-17, 19-21, 23-33, 39-44, 46-48, 52-58, 60-71, and 77-86 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 112*

Claims 1, 2, 6-8, 10-17, 19-21, 23-33, 39-44, 46-48, 52-58, 60-71, and 77-86 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

On the newly amended claims, specifically all the independent claims, Applicant indicates "wherein the interface card concentrator module sends the packets from *the* memory to the..". There is nowhere in the specification supports that the memory that first stored the

"received packets" is also the same memory that the interface card concentrates send the outbound packet from to the interface. Applicant is required to explain where in the specification has support to the new limitation.

For the examining purpose, it is being viewed that there are two different memories, one is to store the received packets, and another one is to stored the looked up packets.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 6-8, 10-14, 16-17, 19-21, 23-30, 32, 33, 39-44, 47-48, 52-58, 60, 61, 63-67, 71-79, and 81-86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bechtolsheim (US 7,218,632) in view of Aditya (US 5,918,021) in further view of Wilford et al hereinafter Wilford (US 6,687,247).

1. Referring to Claims 1, 2, 16, 32, 33, 47, 63, 71, 81, 82, 83, 84, 85 and 86, Bechtolsheim disclosed a routing device comprising:  
a plurality of interface to communicate packets using a network (input and output interface, 111, 112, refer Fig 1, and Col 2, Lines 55-56); and the router module comprising a packet forwarding

engine (FFE, Col 2, Lines 58), memory (PPE memory, Col 2, Lines 57), a memory management unit (PPE 120, Col 2, Lines 57), and an interface card concentrator module (PPE 120, Col 2, Lines 57, and receive transmit packet, refer to Col 3, Lines 9-14 and Col 4, Lines 55-57) wherein the packet forwarding engine, memory management unit, and the interface card concentrator module are integrated into a single unit (100, refer to Fig 1), wherein the interface card concentrator module receives packets from at least two of the interface cards (act of receive packet refer to Col 3, Lines 9-12), wherein the contents of the received packets are stored in the memory (refer to Col 3, Lines 22-23), wherein the memory management unit generates notification (packet header information as an notification) based on keys (based on the extract information from packet) of the received packets and forward the packet to the packet forwarding engine (refer to Col 3, Lines 31-32), wherein the packet forwarding engine performs route lookups for the packets based on the keys in response to the notification (refer to Col 3, Lines 50-52), and wherein the interface card concentrator module sends the packets from the memory to the interface as output bound packets based on the route lookups performed by the packet forwarding engine in response to the notification (refer to Col 4, Lines 48-57);

Wherein the router module is configured to perform route lookups for the data packets received from different ones of the plurality of interface (packets are received via multiple interface, Col 2, Lines 56) to select routes for the packets in accordance with route information associated with the network and forward the packet back to the interface modules (refer to Col 4, Lines 55-62); and a switch arrangement coupled to the plurality of routing devices and configured to switch control from a first routing device to a second routing device (refer to Col 6, Lines 10-14).

Although Bechtolsheim disclosed the invention substantially as claimed, Bechtolsheim is silent regarding the interface cards are removable and a router module separate from the plurality of interface cards; and a switch arrangement coupled to the plurality of routing devices and configured to switch control from a first routing device to a second routing device.

Aditya, in an analogous art disclosed the interface cards are removable (refer to Col 3, Lines 60-67) and a router module (server 120, fog 1) separate from the plurality of interface cards (NIC, 141 refer to Fig 1);

Hence, providing functionality disclosed by Aditya , would be desired for user to implement because not only it provides fault tolerances capabilities and provide a better load balancing functionality to improve the system processing packet routing information.

Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the system of Bechtolsheim by including the features which provides money saving features.

Bechtolsheim and Aditya are silence regarding a “midplane” coupled between the plurality of removable interface cards and the router module and separating the plurality of removable interface cards from the router module

Wilford, in an analogous art, disclosed a midplane that is in between a physical interface and router module (refer to Col 5, Lines 1-10).

Hence, providing midplane disclosed by Wilford, would be desired for user to utilized and implement in the router system in order to provide data transferring functionality in between the interface and the router module.

Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to have modified the systems of Bechtolsheim and Aditya by including the feature such as a midplane.

Furthermore, it must be obvious to comprise a midplane which between the removable interface and router module, since according to the specification, the midplane functionality is to provide power to the interface, and the interface according to Bechtolsheim and Aditya must have power in order for it to function, therefore, there must be a midplane in between the interface and router module.

2. Referring to Claim 6, Bechtolsheim disclosed wherein the interface card concentrator assembles output bound packets from data stored in the memory and forwards the outbound packets to the plurality of interface (refer to Col 4, Lines 53-58).

Although Bechtolsheim disclosed the invention substantially as claimed, Bechtolsheim is silent regarding the interface cards are removable.

Aditya, in an analogous art disclosed the interface cards are removable (refer to Col 3, Lines 60-67).

Hence, providing functionality disclosed by Aditya , would be desired for user to implement because not only it provides fault tolerances capabilities and provide a better load balancing functionality to improve the system processing packet routing information.

Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the system of Bechtolsheim by including the features which provides money saving features.

3. Referring to Claims 7, Bechtolsheim disclosed, wherein the interface card concentrator (PPE 120, Col 2, Lines 57) processes inbound packets received from the plurality of interface (refer to Col 3, Lines 9-23) to remove keys from the inbound packets, and stores data from the processed inbound packets in the memory (refer to Col 3, Lines 9-23).

4. Referring to Claims 8 and 39, Bechtolsheim disclosed wherein the memory comprises an SDRAM device (memory, refer to Col 2, lines 58, it is obvious to have a SDRAM as a memory since SDRAM is a conventional memory device).

5. Referring to Claims 40, and 65, Bechtolsheim disclosed wherein the memory management circuit is further configured to provide a notification (then sent the data information) to the packet forwarding engine based on information extracted from an incoming data packet (refer to Col 3, Lines 31).

6. Referring to Claims 10, 41 and 66, Bechtolsheim disclosed wherein the extracted information includes at least one of source address information, destination address information, source port information, and destination port information (header information as well as the payload



information contains all the source address information, destination address information, ..etc, refer to Col 3, Lines 15-25 and Col 4, Lines 43-47).

7. Referring to Claims 11, 14, 42, and 67, Bechtolsheim disclosed wherein the packet forwarding module is configured to select a route for packets received from at least two different ones of the plurality of interface cards by referencing a forwarding table based on the extracted information, and wherein the forwarding table stores the route information for forwarding data packets received from any of the plurality of interface cards (refer to Col 4, Lines 22-43).

8. Referring to Claims 26, 43, 57, and 79, Bechtolsheim disclosed a routing engine to store a routing table (refer to Col 4, Lines 23-25).

9. Referring to Claims 13, and 44, Bechtolsheim disclosed a memory to store the forwarding table (refer to Col 4, Lines 28)

10. Referring to Claim 68, Bechtolsheim disclosed wherein the route lookup circuit is configured to select the route by performing a longest prefix match based on the extracted information (refer to Col 4, Lines 35-43).

11. Referring to Claim 64, and 69, Bechtolsheim disclosed wherein the packet processing circuit is configured to remove an L2 header from an incoming data packet (it is inherent that the packet

must first be extracted./remove header information in order to obtain proper destination information, refer to Col 3, Lines 15-21).

12. Referring to Claim 70, Bechtolsheim disclosed wherein the packet processing circuit is configured to build an L2 header for an outbound data packet (it is inherent that in order to sent out the data, the header information must be “build”, Col 3, Lines 15-21).

13. Referring to Claim 20, Bechtolsheim disclosed wherein the memory is configured to store outbound data (refer to Col 4, Lines 35-43 and Lines 47-52).

14. Referring to Claims 21 and 52, Bechtolsheim disclosed wherein the memory comprises an SDRAM device (memory, refer to Col 2, lines 58, it is obvious to have a SDRAM as a memory since SDRAM is a conventional memory device).

15. Referring to Claims 53, and 77, Bechtolsheim disclosed wherein the memory management circuit is further configured to provide a notification (then sent the data information) to the packet forwarding engine based on information extracted from an incoming data packet (refer to Col 3, Lines 31).

16. Referring to Claims 23 and 54, Bechtolsheim disclosed wherein the extracted information includes at least one of source address information, destination address information, source port information, and destination port information (refer to Col 3, Lines 1-5).

17. Referring to Claims 19, 24, 28, 55 and 78, Bechtolsheim disclosed wherein the packet forwarding module is configured to select a route for packets received from at least two different ones of the plurality of interface by referencing a forwarding table based on the extracted information, and wherein the forwarding table stores the route information for forwarding data packets received from any of the plurality of interface (refer to Col 4, Lines 10-15).

Although Bechtolsheim disclosed the invention substantially as claimed, Bechtolsheim is silent regarding the interface cards are removable.

Aditya, in an analogous art disclosed the interface cards are removable (refer to Col 3, Lines 60-67);

Hence, providing functionality disclosed by Aditya , would be desired for user to implement because not only it provides fault tolerances capabilities and provide a better load balancing functionality to improve the system processing packet routing information.

Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the system of Bechtolsheim by including the features which provides money saving features.

18. Referring to Claims 27 and 58, Bechtolsheim disclosed a memory to store the forwarding table (refer to Col 4, Lines 30)

19. Referring to Claims 17 and 48, Bechtolsheim disclosed wherein the single module comprises a single printed circuit card that interconnects the packet processing circuit, the memory management circuit, and the route lookup circuit (100, refer to Fig 1).

20. Referring to Claims 25, and 56, Bechtolsheim disclosed wherein the route lookup circuit is configured to select the route by performing a longest prefix match based on the extracted information (refer to Col 4, Lines 35-43).

21. Referring to Claims 29 and 60, Bechtolsheim disclosed wherein the packet processing circuit is configured to remove an L2 header from an incoming data packet (refer to Col 3, Lines 17).

22. Referring to Claims 30, 61 and 70, Bechtolsheim disclosed wherein the packet processing circuit is configured to build an L2 header for an outbound data packet (it is inherent that in order to sent out the data, the header information must be "build", Col 3, Lines 59-66).

Claims 15, 31, 46, 62 and 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bechtolsheim et al hereinafter Bechtolsheim (US 6,643,269) in view of view of Aditya (US 7,010,232) in further view o f Wilford et al hereinafter Wilford (US 6,687,247) and Zadikian et al hereinafter Zadikian (US 6,724,757).

23. Referring to Claims 15, 31, 46, 62 and 80, Bechtolsheim disclosed a router module to process the data packet and to forward the data packet between the interface modules (refer to Col 9, Lines 20-45).

although Bechtolsheim, Aditya, and Wilford disclosed the invention substantially as claimed, they are silent on disclosed a redundant router processing data in response to the malfunction of the router module.

Zadikian, in an analogous art disclosed a redundant router being utilized in the case of malfunction (refer to Col 8, Lines 10-25).

Hence, providing a backup function by providing a redundant router disclosed by Zadikian, would be desired for user to utilized in the case when the router failure.

Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the system of Bechtolsheim by including the features which providing ability to improve the switching speed and minimizes the impact of such redundancy on other connections.

### ***Conclusion***

**Examiner's Notes:** Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner. In the case of amending the

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claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

A shortened statutory period for reply to this Office action is set to expire THREE MONTHS from the mailing date of this action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karen C. Tang whose telephone number is (571)272-3116. The examiner can normally be reached on M-F 7 - 3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (571)272-3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karen Tang

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